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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/580,311

04/02/2007

Tomihisa Tsuchiya

P71313US0

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136 7590 07/14/2008

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EXAMINER

MILLER, CARL STUART

ART UNIT

PAPER NUMBER

3747

MAIL DATE

DELIVERY MODE

07/14/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/580,311	Applicant(s) TSUCHIYA ET AL.	
	Examiner Carl S. Miller	Art Unit 3747	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 April 2008 and 18 June 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 6-8 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 6-8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/18/08</u> . | 6) <input type="checkbox"/> Other: _____ |

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Junichi JP('371)) in view of Kato ('969) or Smith ('856)).

Junichi teaches an injector mounted in a cylinder head and having at least two seals mounted in grooves along the side of the injector. The lower two seals are made of metal which is inherently heat resistant and would necessarily be heat resistant in order to withstand the heat of combustion from the inside of the cylinder. The upper seal is in the shape of a washer but is not described as a washer.

Kato teaches a seal for the side of an in-cylinder injector wherein the seal is made of a resin. The resin is obviously heat resistant since the seal is directly subjected to the heat in the interior of the cylinder. It would have been obvious to make the resin somewhat elastic since the injector would have been subject to cylinder vibrations.

Smith teaches an in-cylinder injector mounted using an elastic member (34) and a second member (80) that is directly subjected to the heat inside the cylinder. Since the seal (34) is disclosed as being both elastic and heat resistant, it would have been obvious to make the seal (80) also elastic and heat resistant. Furthermore, the seal (80) is disclosed as a resin-like material.

It would have been obvious to modify Junichi by using a resin-based elastic seal or seals, as the lower seals (18) since this material had been taught by both Smith and Kato as a superior material for a seal adjacent to the cylinder for both its elastic and heat resistive properties.

Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Junichi and Smith or Kato as applied to claim 6 above, and further in view of Kenji.

Kenji, at Figure 3, teaches an injector of the type used in a cylinder head as taught by Junichi and has a washer used between the cylinder head shelf and the horizontal support of the injector. This washer includes two layers with an elastic layer baked onto the metal layer.

It would have been obvious to modify Junichi as noted above and to have used the washer taught by Kenji as the seal washer for the injector since Junichi already taught a similar seal washer in the same location.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Applicant's arguments filed 4/01/08 and 6/18/08 have been fully considered but they are not persuasive. In particular, the applicant's sole argument is that the Junichi reference teaches metal heat resistant seals that are not elastic. Unfortunately, both Smith and Kato teach that it was common in the art to use resin-based, heat-resistant seals near the injector tip and even in combination with other seals further up the injector. Thus, it would have been obvious to use such a seal or seals in place of the

metal seals in Junichi since this combination of elements would have been the simple use of known elements for their established functions with predictable results.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Carl S. Miller whose telephone number is 571-272-4849. The examiner can normally be reached on MTWTHF.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Cronin, can be reached on 571-272-4536. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3747

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

/Carl S. Miller/
Primary Examiner
Art Unit 3747